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PANDORA MOTH INFESTATION- SEQUOIA N. F.

An examination of reported infestations of Pandora moth (Coloradia pandora) in the Little Kern river drainage basin was made by entomologist G. R. Struble of the Berkeley Laboratory in company with Ranger Ken Fox of Springville on September 5 to 10, 1947. This examination included visits to the most heavily defoliated trees on slopes lying primarily to the east of the Little Kern river, and west and north of White Mountain. Heaviest defoliations seen were in the vicinity of Lion Meadow and Willow Creek. Light infestations were noted along slopes west of the Little Kern.

Areas involved. The approximate zone of infestation covers roughly a township, most of which appears to occur in the drainage of the Little Kern. Reports of infestations in the vicinity of Trout Meadow indicate an extension eastward and southward into the main Kern basin. The areas visited included approximately 1500 to 2000 acres of heavy defoliation. All areas are inaccessible except by trail.

Character of defoliation. Heaviest defoliations occurred on the poorest sites, especially along the crests of ridges where it is estimated that 90 percent of the foliage was devoured, leaving only the current terminal foliage untouched. Lesser defoliations from none visible to varying amounts were prevalent throughout the area, with least damage to trees growing on the best sites. Affected areas are plainly visible for a distance of several miles by the grayish appearance of the stand in contrast to the green appearance of a normal stand. Larval castings beneath heavily infested trees covered the ground solidly.

Insects involved in defoliation.

1. Pandora moth, Coloradia pandora. This insect occurred in great abundance in the mature caterpillar stage during May and June. In June forest officers reported great numbers of the caterpillars were migrating down the trunks of affected trees. Others could plainly hear the chewing of the caterpillars above when all else was perfectly still.

At the time of this examination only the pupal stage was found, as chrysalids from 3 to 4 inches below the surface of the soil or duff level, where they were in plentiful numbers.

2. Sawflies, Tenthredinidae sp. At least part of the defoliation throughout the infested area was caused by the larvae of one of the sawflies. Beneath every tree examined for pandora moth pupae the sawfly cocoons numbered about 10 to every pandora moth chrysalid found. This indicated that a fair proportion of the defoliation was caused by the sawfly larvae. Cocoons of the sawfly, as well as pandora moth chrysalids were collected for rearing out the adults.

Effect of defoliation on the stand. It is expected that the general stand of Jeffrey pine in the most heavily defoliated areas will be weakened severely, and some of the most heavily infested trees may die. However, unless the insect defoliators continue to be active during the next 2 years, gradual recovery can be expected.

Possibility of decline in infestation.

Reported defoliations in these areas last year when moths were in flight indicated that pandora moth defoliations have been in progress for 4 years, inasmuch as this insect has a 2 year life cycle. Evidence at the time of this examination of the possibility of a sudden decline of pandora moth was indicated by the large numbers of dead and dried bodies of caterpillars and some pupae in the soil. A count in a small area on the north side of one infested tree revealed 23 living pupae and 52 dead caterpillars and pupae, with the probability that many of the dead bodies were missed. No dead sawfly pupae were noted.

Possibility of Jeffrey pine beetle outbreak.

Current Jeffrey pine beetle activity in this area, although still in the endemic stage, appears to be on the increase. An estimate of current fades (trees killed by 1946 attacks) within the area reveals approximately 20 to 30 trees per section scattered throughout. Current group attacks were noted in a few places, each group containing 2 to 3 trees. With the stand severely weakened by the defoliation, there is a good possibility that an aggressive Jeffrey pine beetle outbreak may occur.

In addition to the weakening by defoliation, this area has suffered 2 successive years of severe drought. This condition alone appears to be favoring the development of aggressive bark beetle activity.

Recommendations.

The areas included within the zone of infestation are a part of one of the principal working circles of the Sequoia National Forest. High commercial values are represented throughout. Protection against insect outbreaks is therefore a primary consideration. The principal threat at present, considering the weakened conditions by defoliation and drought, appears to be an outbreak of the Jeffrey pine beetle.

The endemic activity of the beetle now shows evidence of increasing. For this reason defoliated areas are regarded as critical and should be watched closely for a possible epidemic bark beetle outbreak.

The history of pandora moth outbreaks in the past have shown a rather sudden decline after about 6 years. The same trend in the Little Kern areas is now indicated. For this reason, and in addition, the small amount of kill that may occur as a direct result of defoliation, control of the pandora moth is not recommended.

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